

Application No. 10/581988
Responsive to office action dated April 28, 2009

Remarks

Favorable reconsideration of this application is respectfully requested. Claims 2 and 3 are amended. Claims 1-6 and 11 are examined. Claims 7-10 are considered withdrawn. Claims 1-11 are pending.

Claim Rejections- 35 U.S.C. 112

Claims 2, 3, and 11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Applicants respectfully traverse the rejection.

Regarding claim 2, claim 2 recites that the inner face of the tube has a dynamic friction resistance that is 70% or less than that of the same tube made only of the polyimide resin alone. The subject matter of claim 2 is supported in Applicants' disclosure as originally filed. In fact, lines 11-13 within paragraph [0013] of the specification (i.e. page 5, lines 17-19) explicitly describe that a medical tube with a dynamic friction resistance of the inner face of the tube being 70% or less of that of a tube made of a polyimide resin alone can be obtained. Moreover, Table 1 at paragraph [0061] on page 20 shows a comparison of Example 1 and Comparative Example 1, where Example 1 shows the presence of fluorine resin and where Comparative Example 1 shows the absence of fluorine resin. For at least these reasons, claim 2 is supported by the original disclosure.

Regarding claim 3, claim 3 recites the content of the fluorine resin is 3 to 50 weight% relative to a content of the polyimide resin. The subject matter of claim 3 is supported in Applicants' original disclosure as filed. In fact, lines 5-7 within paragraph [0025] of the specification (i.e. page 9, lines 6-8) explicitly describe that the amount of fluorine resin is set at 3 to 50 weight % with reference to a solid content of a polyimide precursor solution. For at least this reason, claim 3 is supported by the original disclosure.

Regarding claim 11, Applicants respectfully submit that claim 11 is supported in their originally filed disclosure. Claim 11 recites that a dynamic friction resistance of the inner face of the tube is no higher than 0.26N and as low as 0.18N. Table 1 at paragraph

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[0061] of Applicants' disclosure clearly illustrates that the dynamic friction resistance of the inner face of the tube does not exceed 0.26N and does not fall below 0.18N. Moreover, Applicants have shown other examples between these thresholds, for example, at 0.19N and 0.23N. One of skill in the art would understand that Applicants were in possession of the range of values claimed, when considering the thresholds illustrated, along with the other values between the upper and lower limits. For at least these reasons, claim 11 is supported by the originally filed disclosure.

In view of the foregoing reasons, Applicants respectfully submit that claims 2, 3, and 11 comply with 35 U.S.C. 112, first paragraph, and respectfully request withdrawal of the rejection.

Claim Rejections- 35 U.S.C. 103

Claims 1-6 and 11 are rejected under 35 U.S.C. 103(a) as obvious over Nakajima (JP 2003-340946) in view of Yamamoto et al. (US 5309210). Applicants respectfully traverse the rejection.

Applicants respectfully submit that the references cited do not disclose or suggest the features of at least claim 1. Namely, the references do not disclose or suggest a mixture component, including a polyimide resin and fluorine resin particles, being heated and cured at an outer face of a core wire at a temperature exceeding a melting point of the fluorine resin particles.

Applicants have found that such a limitation of claim 1 can provide a medical tube with advantageous properties. For example, the present invention of claim 1 can achieve excellent effects such as described in paragraphs [0040], [0061], and [0062] of the specification. In particular, Table 1 in [0061] shows Comparative Example 2 where the temperature is not raised to a melting point of the fluorine resin particles, and results in a glass-face contact angle (75°) and an air-face contact angle (72°) that are significantly inferior to those of the Example 1-4, which illustrate glass-face contact and air-face contact angles about, and even exceeding, 100°. See e.g. Table 1 and paragraph [0062].

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The rejection states that the claim 1 is rendered obvious by including the fluorine resin of Yamamoto et al. in the outer layer of Nakajima. Applicants respectfully disagree.

The deficiencies of Nakajima have been documented in the record. Particularly, Nakajima et al. at least fails to teach a mixture of polyimide resin and fluorine resin. Applicants submit that Nakajima also fails to describe heating to a temperature exceeding a melting point of a fluorine resin particle.

Yamamoto et al. does not remedy the deficiencies of Nakajima. Rather, Yamamoto et al. describes a heat resistive resin containing fluorinated resin particles dispersed a precursor polyimide, where the liquid is applied to a mold and heated. See column 6, lines 5-12. That is, Yamamoto et al. merely describes general heating of the heat resistive resin containing fluorine resin particles. However, Yamamoto et al. fails to disclose or suggest heating to a temperature exceeding a melting point of the fluorine resin particles. In fact, the PTFE of Yamamoto et al. only describes that the solution is dried or heated to allow conversion to an imide but clearly does not describe that heating occurs to a temperature exceeding the melting point of PTFE or any fluorine resin particle. See column 6, lines 11-14. For at least these reasons, Yamamoto et al. fails to remedy the deficiencies of Nakajima.

Moreover, there is no reasonable suggestion that Yamamoto et al. would enjoy the benefits that can be achieved by the claimed invention, such as improved contact angles noted above, since the reference fails to disclose heating to a temperature exceeding a melting point of the fluorine resin particles. Even further, there is no reason to expect that Yamamoto et al. would arrive at the missing limitation (i.e. heating at a temperature exceeding a melting point of the fluorine resin particles), as the reference mentions nothing of attempting to obtain improved glass-face contact angle and air-face contact angle that can be obtained by the claimed invention. (See e.g. Table 1 of Applicants' specification). Consequently, claim 1 does not follow from the cited references for at least the foregoing reasons. Applicants respectfully submit that claim 1 and its dependents are patentable.

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Favorable reconsideration and withdrawal of the rejection is respectfully requested.

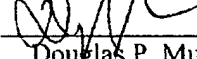
In view of the above amendments and remarks, Applicants believe that this application is in a condition for allowance. A Notice of Allowance is respectfully solicited. If any questions arise regarding this communication, the Examiner is invited to contact Applicants' representative listed below.



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Respectfully submitted,

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